as was once supposed; "the deeper investigation goes the greater the difficulties that rise up before us." Continuing, the *Times* reports him as remarking that the result of his own investigations had brought him to doubt the specific character of the cholera bacillus. "The question," he said, "is in this strange position—that, while we know with certainty that the vibrios which appear in cholera are the cause of the symptoms of the disease, we do not know for certain that these vibrios are of a distinct species. We cannot say for certain whether in all cases of true cholera they belong to a single species or to several, whether they are distinct from our own native vibrios or not." He was inclined to think they were not distinct, and propounded a quite new theory to the effect that these native and harmless vibrios take on an injurious character and give rise to cholera when some other at present undiscovered germ is introduced; for it is certain that cholera is introduced, and yet apparently the germs are here all the time. M. Metchnikoff, on the other hand, defended the specific character of the cholera vibrio, but admitted that it was not everything. It is frequently present, and yet does no harm. To explain this he has invented yet another theory, very curious and rich in appalling possibilities. The cholera germ, he thinks, is only powerful for evil when the native bacilli of the human interior, the *flora* of the stomach and intestines, as he quaintly calls them, are favourable to its growth. It is pointed out by our contemporary that these utterances are interesting as marking a distinct change of front and a distinct advance in knowledge. Bacteriologists, as the result of their own investigations, are beginning to come into line with the position long maintained by other observers, who reached their conclusions by the old method of studying the facts of epidemic disease. The germ is, no doubt, the cause of the disease, but it alone will not suffice. Its effects depend upon the conditions in which it is placed, upon its environment; it must have a favourable soil in which to grow, or it changes into a harmless variety. And this bacteriological doctrine has an important bearing on the encouragement of hygiene, for it helps us to understand more precisely how hygienic measures work in rendering the soil unfavourable to the growth of the injurious micro-organisms.

SCIENCE IN THE MEDICAL SCHOOLS.

THE students' number of the *Lancet* furnishes some interesting information upon the curricula of the medical schools of Great Britain. With the idea of seeing how far science instruction in subjects not purely medical is provided in these schools, we have prepared the subjoined table, from lists given in our contemporary, of classes to be held during the session

	Physiology.	Biology or Zoology.	Botany.	Chemistry.	Practical Chemistry.	Natural Philosophy or Physics.	Practical Physics.	Bacteriology.	Hygiene or Public Health.	Natural History.
METROPOLITAN MEDICAL SCHOOLS.										
St. Bartholomew's Hospital	×	×	×	×	×	×	×	...	×	...
Charing Cross Hospital and College	×	×	×	×	×	×	×	×	×	...
St. George's Hospital	×	...	...	×	×	...	...	...	...	...
Guy's Hospital	×	×	×	×	×	×	...	×	×	...
King's College Hospital	×	×	×	×	×	×	...	×	×	...
London Hospital	×	×	×	×	×	×	×	×	×	...
St. Mary's Hospital	×	...	...	×	×	...	...	...	...	...
Middlesex Hospital	×	×	...	×	×	...	...	...	×	...
St. Thomas's Hospital and School	×	×	×	×	×	×	...	×	×	...
University College and Hospital	×	×	×	×	×	×	...	×	×	...
Westminster Hospital	×	×	...	×	×	×	...	...	×	...
PROVINCIAL MEDICAL SCHOOLS.										
University of Durham College of Medicine	×	×	×	×	×	×	×	×	×	...
University College, Liverpool	×	×	×	×	×	×	×	...	×	...
Owens College School of Medicine	×	×	×	×	×	×	×	...	×	...
Sheffield School of Medicine	×	...	×	×	×	×	×	...	×	...
Mason College	×	×	×	×	×	×	...	...	×	...
University College, Bristol	×	×	...	×	×	...	...	×	×	...
Cambridge University	×	×	×	×	×	×	...	...	×	...
Oxford University	×	×	×	×	×	×	...	...	×	...
Yorkshire College, Leeds	×	×	×	×	×	×	...	...	×	...
University College, Cardiff	×	×	×	×	×	×	...	...	...	...
MEDICAL SCHOOLS OF SCOTLAND.										
Aberdeen University	×	...	×	×	×	×	...	...	×	×
St. Andrews University	×	×	×	×	×	×	...	...	...	×
Edinburgh University	×	×	×	×	×	×	...	...	×	×
Glasgow University	×	×	×	×	×	×	...	...	×	×
St. Mungo's College and School of Medicine	×	×	×	×	×	×	...	×	×	×
Anderson's College, Glasgow	×	×	×	×	×	×	...	...	×	...
School of Medicine, Edinburgh	×	×	×	×	×	×	...	...	×	×
University College, Dundee	×	×	×	×	×	×	...	...	...	...
MEDICAL SCHOOLS OF IRELAND.										
Dublin University	...	×	×	×	×	×	...	...	×	...
Dublin Royal College of Surgeons	×	×	×	×	×	×	...	...	×	...
Catholic University, Dublin	×	×	×	×	×	×	...	...	×	...
Queen's College, Belfast	×	×	×	×	×	×	...	...	...	...
Queen's College, Cork	×	×	×	×	×	×	...	...	×	...
Queen's College, Galway	×	×	×	×	×	×	...	...	...	...

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1894-95, which begins next month. The table does not pretend to be complete; nevertheless, it will serve to show the kind of science subjects on which lectures are given to medical students outside medical technology. The courses advertised are indicated by crosses.

It has not been considered necessary to tabulate courses only given in two or three medical schools. Organic chemistry, for instance, is only down as a specific subject in the lists of lectures at the London Hospital and the University College Hospital. Probably the reason for this is that, at many colleges, the lectures on chemistry embrace the organic and the inorganic branches. Chemical physics is down in the medical curricula of the University College, Mason College, Cambridge University, and Yorkshire College, and physiological chemistry is among the courses at St. George's Hospital and Oxford University. Though psychological medicine is taught in a number of colleges, psychology only appears as the subject of lectures at St. Bartholomew's Hospital, Charing Cross Hospital, Edinburgh School of Medicine, and Queen's College, Cork. In the first two of these institutions, and also at Oxford University, pharmacology is treated distinct from practical pharmacy. It will be seen from the table that, in Scottish medical schools, the students are instructed in natural history, whereas this subject does not appear in the lists of lectures in the medical schools of England and Ireland.

Courses of lectures on bacteriology are advertised to take place at nine medical schools, but it must not be supposed that they are the only schools having facilities for carrying on this study. The *Lancet* has something to say on bacteriology and the medical curriculum. Our contemporary points out that "it is now almost imperative that those who are engaged in the teaching and study of medicine should consider the position of bacteriology in medical education with regard (*a*) to students proper, and (*b*) to those students of more mature years known as post-graduates. We think that the time has nearly come when it will be insisted upon that every medical student should receive not only some systematic instruction in the principles of bacteriology, but, more important still, should be put through a thorough, if short, course of practical laboratory instruction, in which the theories propounded in the class-room may be clearly illustrated. . . . Many of the medical schools have already recognised this fact, and in London alone there are now several well-equipped bacteriological laboratories where a thorough course of instruction can be obtained by the medical student. Guy's Hospital, University College Hospital, St. Bartholomew's Hospital, for example, have all acquired special facilities for carrying on the work; but there is still much room for the more general teaching of the subject. In the large university medical schools, especially in Oxford, Cambridge, Victoria, Durham, Edinburgh, Aberdeen, and Glasgow, the subject is more or less thoroughly taught, but not in all cases as practically as is desirable."

FORTHCOMING SCIENTIFIC BOOKS.

THE following scientific books are reported as being in preparation for the forthcoming publishing season. The list, though not so lengthy as the one we printed a year ago, is still a representative one, and lovers of each and every branch of science appear to be well catered for:—

Messrs. Macmillan and Co. announce:—"A Treatise on Bessel Functions," by Profs. G. B. Matthews and A. Gray; "Elementary Treatise on the Theory of Functions," by James Harkness and Frank Morley; "Elliptic Functions," by A. C. Dixon; "Practical Plane Geometry," by J. Humphrey Spanton; "An Introductory Account of Certain Modern Ideas and Methods in Plane Analytical Geometry," by Dr. Charlotte Angas Scott; "Integral Calculus and Differential Equations for Beginners," by Joseph Edwards; "Geometrical Conic Sections," by Charles Smith; "Elementary Mensuration, with Exercises on the Mensuration of Plane and Solid Figures," by F. H. Stevens; "The Theory of Light," by Thomas Preston, second edition, thoroughly revised; "Magnetism and Electricity," by Prof. Andrew Gray, illustrated; "Steam and the Marine Steam Engine," by John Yeo, with illustrations; "Pumping Machinery," by Dr. Julius Weisbach; "A Laboratory Manual of Physics and Applied Electricity," arranged and edited by Edward L. Nichols, vol. ii. Senior Course and Outline of Advanced Work, by George S. Moler, Frederick Bedell, Homer J. Hotchkiss, Charles P. Matthews, and the Editor, illustrated; "Theoretical Chemistry," by Prof. Nernst, translated by Prof. Charles Skeele Palmer; "Manual of Physico-Chemical Measurements," by Prof. Wilhelm Ostwald, translated, with the author's sanction, by Dr. James Walker, illustrated; "Lassar Cohn's Organic Chemistry," translated by Alexander Smith; "The Rise and Development of Organic Chemistry," by the late C. Schorlemmer, F.R.S., translated and edited by Prof. Smithells; "Chemical Analysis of Oils, Fats, Waxes, and their Commercial Products," by Prof. R. Benedikt, translated, edited, and enlarged by Dr. J. Lewkowitsch; "The Planet Earth, an Astronomical Introduction to Geography," by R. A. Gregory, illustrated; "Papers on Geology," by Joseph Prestwich, F.R.S.; "The Cambridge Natural History," edited by J. W. Clark, S. F. Harmer, and A. E. Shipley; vol. iii. "Molluscs," by Rev. A. H. Cooke; "Aquatic Insects," by Prof. L. C. Miall, F.R.S., illustrated; "Text-book of the Diseases of Trees," by Prof. R. Hartig, translated by Dr. W. Somerville, with a Preface by Prof. H. Marshall Ward, F.R.S., with numerous illustrations; "Timber and Timber Trees, Native and Foreign," by Thomas Laslett, new edition, revised by Prof. H. Marshall Ward, F.R.S.; "A Text-book of Comparative Anatomy," by Dr. Arnold Lang, translated into English by Henry M. Bernard and Matilda Bernard, vol. ii.; "Human Anatomy," by Prof. Wiedersheim, translated from the last German edition by H. M. Bernard, revised and annotated by Prof. G. B. Howes, illustrated; "A Text-book of Pathology, Systematic and Practical," by Prof. D. J. Hamilton, vol. ii.; "Lessons in Practical Bacteriology," by Dr. A. A. Kanthack and J. H. Drysdale; "Mental Development in the Child and the Race," by Prof. J. Baldwin; "A Course of Experimental Psychology," by Dr. J. McKeen Cattell; Leibnitz's "Nouveaux Essais," translated by A. G. Langley; "The Right to the Whole Produce of Labour: the Origin and Development of the Theory of Labour's Claim to the Whole Product of Industry," by Prof. Menger, translated by Mary E. Tanner; "Elementary Course of Practical Science," part ii., by Hugh Gordon; "Short Studies in Earth Knowledge," by William Gee, with illustrations; "Physiography for Beginners," by J. E. Marr, F.R.S., and Alfred Harker; "Physiology for Beginners," by Dr. Michael Foster, F.R.S., and Dr. L. E. Shore; "Agriculture, Practical and Scientific," by Prof. James Muir; "Horse-Breeding for Farmers," by A. E. Pease; "Garden Plants and Flowers: a Primer for Amateurs," by J. Wright; "Greenhouse and Window Plants, a Primer for Amateurs," edited by J. Wright; "Vegetables and their Cultivation, a Primer for Amateurs, Cottage Gardeners, and Allotment Holders," by A. Dean, edited by J. Wright; "The Mechanism of Weaving," by Thomas William Fox; "Boot and Shoe Manufacture," by C. W. B. Burdett, with numerous illustrations; "Facts about Processes, Pigments, and Vehicles: a Manual for Art Students," by A. P. Laurie, illustrated.

Messrs. Sampson Low and Co. will issue:—"Instruction in Photography," "Photography with Emulsions," "Negative Making," "Colour Vision" (being the Tyndall Lectures delivered before the Royal Institution during the present year), all by Captain Abney, C.B., F.R.S.; "Art and Practice of Silver Printing," written by Captain Abney in conjunction with H. P. Robinson; "Pictorial Effect in Photography," "The Studio, and what to do in it," "Letters on Landscape Photography," by H. P. Robinson; "Specifications, for the use of Surveyors, Architects, Engineers, and Builders," by J. Leaning; "Sweet-scented Flowers and Fragrant Leaves: interesting Associations gathered from many Sources, with Notes on their History and Utility," by Donald McDonald, with sixteen coloured plates; "A Text-book of Mechanics and Hydrostatics, by Herbert Hancock, with over 400 diagrams; "Thermodynamics: treated with Elementary Mathematics, and containing applications to Animal and Vegetable Life, Tidal Friction and Electricity," by J. Parker, with numerous diagrams; "The Theory and Practice of Handwriting: a Practical Manual for the Guidance of Inspectors, School Boards, Teachers, and Students," with diagrams and illustrations, by John Jackson, second edition, greatly enlarged with two additional chapters, two extra appendices, and several pages of facsimile illustrations.

Messrs. Swan Sonnenschein and Co. will publish:—"A

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